

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

**Little Naches River Riparian and In-Channel
Habitat Enhancement Project**

Bonneville project number, if an ongoing project 9158

Business name of agency, institution or organization requesting funding
Yakama Indian Nation Fisheries Program

Business acronym (if appropriate) YIN Fisheries

Proposal contact person or principal investigator:

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Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
U.S. Forest Service, Naches District	10061 Highway 12	Naches, WA 98937	Scott Hoefer
Washington Dept. of Fish and Wildlife	1701 S. 24th Ave.	Yakima, WA 98901	
Other Private Subcontractors as yet to be determined			

NPPC Program Measure Number(s) which this project addresses.

7.6 Habitat Goal Policies and Objectives, 7.7 Cooperative Habitat Protection and Improvement with Private Landowners, 7.8 Implement State Federal and Tribal Habitat Improvements.

NMFS Biological Opinion Number(s) which this project addresses.

None known

Other planning document references.

The project supports goals of *Wy Kan Ush Me Wa Kush Wit* for restoration of riparian areas, habitat conditions and water quality impairments in the Yakima River including the Little Naches drainage. The restoration work proposes to enhance several elements identified in the coarse screening process of the tribal plan (large woody debris, pool frequency and volume, bank stability and stream temperature). The project work will be in coordination with the U.S. Forest Service, Washington Department of Fish and Wildlife and Plum Creek Timber Company.

Subbasin.

Little Naches River and tributaries.

Short description.

Improve and restore degraded habitat and riparian conditions in the Little Naches River through the placement of large woody debris and rock to enhance pool formation and retain spawning gravels, construction of bank deflectors to reduce erosion and provide velocity refugia, revegetation of impacted riparian sites, and placement of barriers to restrict recreational vehicular damage to riparian areas.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	X	Construction	X	Watershed
+	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	+	Ecosystems
	Climate	+	Monitoring/eval.		Flow/survival
	Other	+	Resource mgmt		Fish disease
		+	Planning/admin.		Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

Habitat enhancement, riparian improvement

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
5511600	Yakima Basin Side Channels	enhanced early life history survival from Little Naches is critical to supply fish for rearing in side channels
5511700	Yakima River Rearing Habitat Enhancement Between Selah and Union Gap	enhanced early life history survival from Little Naches is critical to supply fish for rearing in side channels.
9603302	Yakima River Coho Restoration-O&M	Little Naches project will provide critical habitat and water quality improvement for coho spawning and rearing

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Review existing information and conduct monitoring to further identify habitat and riparian deficiencies.	A	Review existing information and data pertaining to the Little Naches and its tributaries.
		B	Monitoring will be conducted on the Little Naches to further identify deficiencies in riparian and habitat conditions, as well as their cause.
		C	Within the project area, review existing information on cultural and archaeological sites, and survey areas where ground disturbance is likely to occur from restoration work.
2	Planning and design of habitat and riparian restoration work.	A	Planning and design of enhancement projects, including NEPA documentation.
3	Enhance vegetative conditions in riparian areas.	A	Revegetate impacted riparian sites with native woody and herbaceous plants.
		B	Construct barriers where recreational activities can damage

			riparian areas or revegetation work.
4	Enhance in-stream channel habitat conditions.	A	Construct in-stream structures of rock and large woody debris to provide habitat for spawning, rearing, resting and velocity refuge.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	10/1998	07/1999	15
2	11/1998	07/1999	10
3	04/1999	06/1999	15
4	05/1999	09/1999	60

Schedule constraints.

Dependent upon weather and flow conditions, monitoring and in-channel work may be delayed. Late spring rains or runoff could hinder efforts to collect information on habitat conditions or construct in-stream structures. All construction work within the ordinary high water mark will need to be completed prior to spring chinook spawning (late August) or conducted the following year. Any identified cultural or archaeological sites will be avoided, which may change the location of some work.

Completion date.

2003

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	Watershed Restoration Biologist, Fisheries Technician, Administration	15826
Fringe benefits		4004
Supplies, materials, non-expendable property	Office supplies, Operating supplies, vehicle rental	9170
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		

Indirect costs	26.6% of subtotal of 29000	7714
Subcontracts	Heavy equipment operation, transportation and materials to enhance in-stream habitat	53756
Other		
TOTAL		90470

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	90000	90000	17000	
O&M as % of total	05	10	10	

Section 6. Abstract

The overall goal of this project is to improve riparian and habitat functions that are limiting salmonid production in the Little Naches River. Past land management and floods in the Little Naches River have created poor conditions for spawning, rearing and adult holding for some segments of the drainage. Both federal and state watershed analyses have been completed in the drainage and have further identified riparian and in-channel deficiencies (USFS Little Naches Watershed Analysis 1996, Naches Pass Watershed Analysis 1996). The analyses have been used to prioritize the restoration work. The objectives of the project include additional monitoring, planning, revegetating sparse riparian stands that are prone to erosion and/or are lacking canopy cover and future wood recruitment capability, and introducing large woody debris and boulders to the channel to provide rearing pool area velocity refugia. These goals and objectives support elements of the Columbia River Basin Fish and Wildlife Program (7.6, 7.7, 7.8) and the coarse screening process of the Tribal Restoration Plan (section 3, Biological Perspective). Focus of the restoration work is based on information obtained from Watershed Analyses and additional monitoring. Supplemental pre- and post-monitoring of fish populations and habitat conditions will be conducted to further evaluate benefits obtained from the restoration work. The project is expected to provide immediate gains in rearing habitat and velocity refugia, increase bank stability and sediment filtration in the riparian areas within two to ten years, and supply additional large woody debris recruitment and canopy cover after 20 to 100 years.

Section 7. Project description

a. Technical and/or scientific background.

The Little Naches River is a tributary to the Naches River and the Yakima system. Its mouth is located approximately five miles to the northwest of the town of Cliffdell. The Little Naches contains both anadromous and resident salmonids (spring chinook, winter steelhead, rainbow and cutthroat trout, and bull trout). Habitat and riparian conditions

within the Little Naches River have deteriorated in recent decades due to roads, logging, recreational activity, fires, floods and stream cleanout (wood removal in the 1970's). Considerable investigation and monitoring has been done in the drainage. Cooperative monitoring efforts since 1985 by the Yakama Nation, U.S. Forest Service and Plum Creek Timber Company have delineated channel, road and water quality conditions (Comenout et al 1993, Matthews 1994, Schmidt 1992a, Schmidt 1992b). In 1995 and 1996 two Watershed Analyses were completed and further described habitat problems, their causes and locations in the drainage (USFS Little Naches Watershed Analysis 1996, Naches Pass Watershed Analysis 1996). Both the cooperative monitoring and watershed analyses have focused and prioritized restoration planning efforts. In particular, the lower six miles of the river was identified as an area in need of restoration work. This reach is deficient in pool area, velocity refugia, in-channel large woody debris and riparian vegetation for bank stability, canopy cover, future wood recruitment and allochthonous nutrient delivery. Water quality impairments were also noted including excessive summer temperatures and fine sediment deposition in spawning gravels. Coupled with these habitat and riparian problems, this section of the river typically receives the majority of spring chinook spawning (60-80% of the Little Naches). For these reasons the restoration project will primarily focus on enhancement of riparian and in-channel conditions in this reach. Other locally degraded areas upstream will also be considered for restoration work, but as a secondary priority. Upstream areas are typically in better condition and are likely to recover quicker than downstream. The strategy and intent of this restoration project corresponds to goals and objectives in the habitat section of the Columbia River Basin Fish and Wildlife Program (FWP) (7.6, 7.7, 7.8). Project work is also planned to follow aspects of the Biological Perspective and Coarse Screening Process of the Tribal Restoration Plan for habitat protection and recovery (TRP) (section 3, Biological Perspective). The project will coordinate and collaborate with other agencies and landowners. Cooperative relationships have been established with the U.S. Forest Service, Washington Department of Fish and Wildlife and Plum Creek Timber Company through past and present monitoring work. This relationship will continue with this restoration work. The project will also utilize existing information and watershed analyses to set priorities and objectives. The watershed analyses and the restoration project should meet several of the habitat objectives of the FWP. The Watershed Analyses are intended to modify land management practices to allow recovery, while the restoration project is designed to speed riparian and habitat recovery in priority reaches.

b. Proposal objectives.

Objective 1- Review existing information (Watershed Analyses and past monitoring) and conduct supplemental monitoring. This information will be utilized to further identify habitat and riparian deficiencies, set final priorities, determine the most effective restoration work for a given site and identify sensitive cultural resource areas to be avoided. The Watershed Analysis and monitoring information will be compiled in the final report to outline how restoration work was prioritized and developed.

Objective 2- Plan and design habitat and riparian restoration work. Utilizing existing information, restoration sites will be prioritized and selected. Specific restoration plans will be developed that most effectively address problems in or along the river. These plans will be available for project workers/subcontractors and included in the final report.

Objective 3- Enhance vegetative conditions in riparian areas. Sites found to be lacking in riparian vegetation to control bank erosion or filtrate sediment-laden runoff, and/or provide sufficient canopy cover, large woody debris recruitment and nutrient delivery, will be planted with herbaceous and woody plant species that will restore these attributes. Revegetation sites may also be blocked or barricaded if recreational traffic is likely to damage plantings. Revegetation plans will be available to project workers/subcontractors and included in the final report.

Objective 4- Enhance in-stream habitat conditions that are limiting salmonid production. Rearing habitat in the Little Naches (pool area, resting pools, velocity refugia during peak flows) has been found to be deficient in several reaches. Introduction of wood and rock structures in key areas is expected to augment this limiting habitat. This in-channel work should also help sort spawning gravels, supply quality substrate for macroinvertebrate production and provide additional channel sinuosity for habitat diversity.

c. Rationale and significance to Regional Programs.

The restoration project intends to improve both riparian and in-stream habitat quality to allow greater juvenile and adult survival at freshwater life history stages (FWP 7.6, page 7-32). Maintaining and improving the productivity of salmon and steelhead habitat requires coordination of virtually all activities in a subbasin (FWP 7.6, page 7-32). This restoration project will coordinate with the U.S. Forest Service, Washington Department of Fish and Wildlife and Plum Creek Timber Company. Within the Little Naches, Watershed Analyses have been completed to hopefully ensure that human activities affecting production of salmon and steelhead are coordinated on a comprehensive watershed management basis and maintain the quantity and productivity of salmon and steelhead habitat (FWP Habitat Goals 7.6A.1, 7.6A2). The restoration project work is designed to further enhance the productivity of habitat for weak stocks (Naches River spring chinook and winter steelhead considered depressed by SASSI 1992) (FWP Habitat Goal 7.6A2).

Other restoration work in the Naches and middle Yakima Rivers will benefit from increased anadromous production and survival from this project. The Little Naches is the source for some of the parr and smolt production of the basin. Enhancement of downstream rearing habitat and side channels (Yakima Basin Side Channels 5511600 and Yakima River Rearing Habitat Enhancement Between Selah and Union Gap 5511700) will be ineffective if very few fish reach this life history stage. Restoration work in the Little Naches is intended to provide improved habitat and water quality for fry and juvenile stages to utilize downstream habitat. It is therefore critical for restoration work

conducted lower in the Naches and Yakima to have quality habitat and production from tributary streams such as the Little Naches. In addition, quality habitat is necessary for successful reintroduction of coho in the drainage (Yakima River Coho Restoration- O&M 9603302). Reintroduction and maintenance of coho populations is contingent on good habitat and water quality conditions. The Little Naches Restoration Project proposes to enhance riparian conditions and stream habitat that is critical for reintroduced coho.

d. Project history

The Little Naches River Riparian and In-channel Enhancement Project (5511300) was officially started November of 1997. To date, existing information and Watershed Analyses are being reviewed. Maps and data are being compiled. Some cursory planning has also begun. The project startup is going smoothly, but is still in the very early stages of development and implementation.

e. Methods.

The Little Naches Restoration Project proposes to enhance riparian, habitat and water quality conditions through a staged, interconnected approach. Existing information from past monitoring and watershed analyses will be utilized to set priorities, identify best locations for the work, and attain goals and objectives in an efficient manner. Additional monitoring will be conducted to fill in knowledge gaps and to further assess conditions prior to project work. Information on sensitive cultural sites will also be reviewed to ensure restoration work will not effect them. From this information, restoration plans and designs will be developed. Once designs are completed, selected sites will be revegetated, barriers constructed to retard recreational impacts and/or rock and wood placed in the channel to enhance habitat. The following is a detailed summary of the planned activities and tasks of the restoration project.

Task 1A- Review existing information and data pertaining to the Little Naches and its tributaries.

Past monitoring work (fine sediment in spawning gravels, road surveys, macroinvertebrate sampling, temperature monitoring and habitat surveys) will be reviewed. The two watershed analyses will also be reviewed and will provide additional knowledge of conditions in the drainage and possible causes.

Task 1B- Monitoring will be conducted on the Little Naches to further identify deficiencies in riparian and habitat conditions, as well as their causes.

Where past monitoring or watershed analyses have not supplied enough detail on conditions or problems in the drainage, supplemental monitoring will be conducted. Much of the monitoring will be site specific and include assessment of habitat and channel conditions. The supplemental monitoring will be targeted

to planned restoration areas. Monitoring will follow protocols established for monitoring by the TFW Monitoring Committee and the U.S. Forest Service. Some fish population assessment in the restoration areas is also planned to determine the level of fish use prior to project work. All of this monitoring work will be used to assess pre-project conditions as a comparison to changes that occur after completion of restoration work. By doing both pre- and post-monitoring work, restoration work can be evaluated for benefits to habitat and production.

Task 1C- Within the project area, review existing information on cultural and archaeological sites, and survey areas where ground disturbance is likely to occur from restoration work.

The vast majority of this restoration work will cause little ground disturbance or be located within the stream channel where natural disturbance has already occurred. For this reason, the restoration work is considered to have a low likelihood of impacting cultural or archaeological sites. However, to ensure that damage does not happen, existing information will be reviewed and surveys conducted. Where sites are identified, restoration work will avoid them or be conducted in a manner that does not disturb the ground or existing vegetation.

Task 2A- Planning and design of enhancement projects, including NEPA documentation.

Utilizing monitoring information and watershed analyses, project sites will be prioritized and selected. Designs will be developed that will most effectively address the riparian or habitat deficiencies. Designs will consider and incorporate stream and riparian processes (hydraulics, soils, bank stability, vegetation suitability, channel avulsion) to ensure success of the restoration projects. The restoration work is not likely to significantly impact any other resources, but NEPA documentation will be performed. The U.S. Forest Service has completed an Environmental Assessment for the restoration project that addresses potential effects.

Task 3A- Revegetate impacted riparian sites with native woody and herbaceous plants.

Riparian sites found to be sparse or not providing desired functions will be revegetated. Watershed analyses, monitoring and planning will determine the sites for vegetation work and best planting design. Plant species composition and density will be selected to meet the objective of enhancing vegetative conditions in the riparian area. Dependent upon the site, plants may be selected to provide sediment filtration, bank stability, canopy cover and/or future wood recruitment. Plant selection will also be tailored to site conditions (soils, moisture conditions, aspect, disturbance regime).

Revegetation work will occur in the spring or fall months when successful establishment of plants is most likely. Typically, rooted stock will be utilized on upland sites, cuttings along the channel margin and herbaceous plants in areas prone to sediment runoff or erosion. All vegetation will be planted by hand to avoid bank or channel disturbance.

Task 3B- Construct barriers where recreational activities may damage riparian areas or revegetation work.

Recreational traffic has caused ground disturbance and damage to some riparian areas. Where this is in opposition to restoring riparian areas and revegetation work, barriers will be constructed. Typically the barriers will consist of a line of boulders that can not be moved. The boulders may be interconnected with cable. Boulder placement would be by tracked or tired excavator.

Task 4A- Construct in-stream structures of rock and large woody debris to provide habitat for spawning, rearing, adult resting and velocity refuge.

Sites identified to be lacking critical habitat for salmonid production will be prioritized and treated. Monitoring and watershed analyses found that pool habitat and velocity refugia were two limiting factors for production in the lower Little Naches. Proper placement of rock and wood in the channel can elevate these critical habitat features, as well as sort gravels for spawning and provide adult resting areas. Planning and designs will determine the best configuration of rock and wood in the channel with given hydraulics. Rock and wood materials will be selected of appropriate size and dimension to be stable in the channel. Generally, only large wood (>18" diameter, >20 feet long) and boulders (> 2 feet diameter) will be used in the channel. Material will be placed into the channel with an excavator (tracked or spider hoe), and configured to design plans and specifications to be stable and create desired habitat features (e.g. bank deflectors, clusters, upstream chevrons, keyed wood jams). Material along channel margins may also incorporate some soil to permit establishment of vegetation. All equipment to be operated within the stream channel will be inspected for leakage of petroleum products.

The success of the restoration project is linked to weather and flow conditions. Unusual late spring or early summer high flows would hinder some monitoring work. High flow conditions into summer could also delay implementation of in-channel work. Conversely, very dry conditions could limit the success of establishing riparian vegetation. After completion of the restoration work, extreme peak flows could remove or damage much of the project work.

f. Facilities and equipment.

Placement of rock and large wood within the stream channel will be by an excavator (tracked or rubber tired) of sufficient size and reach to accomplish the work. Most work will require at least a two yard bucket capacity (ideally with a “thumb”) and a minimum 20 foot reach. All equipment to operated within the stream channel shall be clean and free of any leaks (hydraulics and oil). An excavator will also be used for placement of barricades. Dump trucks will be used to transport rock material to site. Transportation of large wood is anticipated to be by log truck or flat bed trailer (low boy).

g. References.

Comenout, E., I Cultee, J. Jim, E. Lewis, A. Meninick, and P. Wahpat. 1993. 1992 survey reports. Naches Ranger District, Wenatchee National Forest. Unpublished report.

Matthews, J.S. 1994. Fine sediment deposition in spawning gravels of the Little Naches River: 1993 status report. Yakima Indian nation, Natural Resource Division, Timber/Fish/Wildlife Program.

Plum Creek Timber Company. L.P. in cooperation with Washington Department of Natural Resources and Yakama Nation. 1996. Naches Pass Watershed Analysis. 308pp. PCTC, Seattle, WA.

U.S.D.A. Forest Service. 1995. Little Naches Watershed Analysis. 114 pp. Naches Ranger District, Wenatchee National Forest. Naches, WA.

Schmidt, B.K. 1992a. 1991 stream survey reports. Naches Ranger District, Wenatchee National Forest. Unpublished report.

Schmidt, B.K. 1992b. 1992 stream survey reports. Naches Ranger District, Wenatchee National Forest. Unpublished report.

Section 8. Relationships to other projects

This project seeks to cooperate and consult with other agencies and companies. Past monitoring within the Little Naches has established good communications and working relationships between the Yakama Nation, U.S. Forest Service, Washington Department of Fish and Wildlife and Plum Creek Timber Company. The restoration work will continue to collaborate between these agencies and company to achieve effective and productive habitat enhancement.

The entire life cycle of a salmon is interconnected. If any one part of the salmon’s life history is impacted, the other parts of the life cycle are also affected. The Little Naches riparian and habitat enhancement is designed to primarily benefit early life stages of anadromous and resident fish. Without quality habitat and riparian conditions for

spawning, fry development and juvenile rearing, other parts of salmonid production will suffer. All salmon enhancement efforts downstream will be less effective if quality habitat and riparian functions are not attained in natal streams, such as the Little Naches. It is therefore incumbent that habitat enhancement measures, such as those proposed by this project, are achieved if salmon stocks are to be comprehensively improved.

Other restoration efforts in the basin and downstream are also important for the success of the Little Naches Enhancement Project. Sufficient numbers of adult fish are necessary to seed improved habitat conditions accomplished by this project. Work through the Yakima/Klickitat Fisheries Production Project (YKFP) is designed to elevate adult fish returns to the Yakima and reintroduce extirpated salmon stocks. This work is crucial to ensure return of adults to the Little Naches.

Section 9. Key personnel

The Yakama Indian Nation employs the largest professional natural resources staff of any tribal government. Fully-qualified scientific, technical and support staff are available or can be hired to carry out all tasks. Highly qualified personnel from the U.S. Forest Service and the Washington Department of Fish and Wildlife will also be participating in this project.

Section 10. Information/technology transfer

Products from this project including the compilation of information on the Little Naches, monitoring results, habitat and riparian design plans, specifications and results will be incorporated into the final report. The results from the project can be applied to other riparian and habitat enhancement projects elsewhere. The information will also be valuable to land managers in the Little Naches. Although not budgeted for, signs could be erected near some of the restoration sites to provide educational opportunities to the general public. Additionally, field trips could be held for the public and other agencies to inform them of the work and its purpose.